



LAA TYPE ACCEPTANCE DATA SHEET
TADS 223
STAAKEN FLITZER

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This TADS is intended as a summary of available information about the type and should be used during the build, operation and permit revalidation phases to help owners and inspectors. Although it is hoped that this document is as complete as possible, other sources may contain more up to date information, e.g. the manufacturer's website.

Section 1 contains general information about the type.

Section 2 contains information about the type that is **MANDATORY** and must be complied with.

Section 3 contains advisory information that owners and inspectors should review to help them maintain and operate the aircraft in an airworthy and safe condition. If due consideration and circumstances suggest that compliance with the requirements in this section can safely be deferred, is not required or not applicable, then this is a permitted judgement call. This section also provides a useful repository for advisory information gathered through defect reports and experience.

Section 1 - Introduction

1.1 UK contact

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1.2 Description

The Flitzer is a small single seat all-wood biplane, with fabric covered flying surfaces. It is available in the form of a set of drawings for amateur construction. The Z-21A is a wide-fuselage version of the Z-21, for increased cockpit space. The VW 1834cc engine is standard, the dual-ignition Aerovee engine of 2180cc is also approved. Despite their small size and light weight, both Z-21 and Z-21A versions are SEP (Group A) Aeroplanes, not microlights.

An alternative rounded shape fin and rudder design has been cleared on a one-off basis on G-ERIW, similar to Z-1S fin and rudder. LAA mod 10914 refers. However the designer recommends that for any future rounded fin example, a standard rounded Z-1S rudder and a 2" taller fin is used of larger area for improved directional control. This modification has yet to be submitted however.

Note that the only propeller(s) approved for an individual aircraft are those listed on the individual aircraft's Operating Limitations document or in the [PTL/1](#) (Propeller Type List) for the type.



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 223
STAAKEN FLITZER**

Section 2 – Mandatory information for owners, operators and inspectors

At all times, responsibility for the maintenance and airworthiness of an aircraft rests with the owner. A Condition of a Permit to Fly requires that: *"the aircraft shall be maintained in an airworthy condition"*.

2.1 Fast Build Kit 51% Compliance

Not applicable, the Flitzer is a plans-built aircraft.

2.2 Build Manual

Nil. Drawing list as follows provides all required information.

Z100	Z200
Z101	Z201
Z102	Z202
Z102a	Z203
Z103	Z204
Z104	Z205
Z105	Z206
Z106	Z207
Z107	Z208
Z108	Z209
Z109	Z210
Z110	Z300
	Z301
	Z302
	Z303
	Z400
	Z401
	Z402
	Z500
	Z501

2.3 Build Inspections

Build inspection schedule 1B (wooden biplane aircraft).
Inspector approval codes A-A or A-W. Inspector signing off final inspection also requires 'first flight' endorsement

2.4 Flight Manual

Nil. Refer to 'Flitzer Ground Handling, Flying & Operating, Do's and Don'ts' by Lynn Williams

2.5 Mandatory Permit Directives

None applicable specifically to this aircraft type:



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 223
STAAKEN FLITZER**

Also check the LAA website for MPDs that are non-type specific ([TL2.22](#)).

2.6 LAA Required Modifications (including LAA issued AILs, SBs, etc)

LAA safety information dated 10.7.01 describes correct interpretation of drawings for the installation of the shoulder harness attachment cable and construction of the welded engine mount.

73.5" span tailplane (as shown on very early Flitzer drawing Z300 dated 27.10.96) is not an accepted option. Correct tailplane span is 69" per drawing Z300 dated 21.6.97.

2.7 Additional engine operating limitations to be placarded or shown by instrument markings

Notes:

- Refer to the engine manufacturer's latest documentation for the definitive parameter values and recommended instruments.
- Where an instrument is not fitted, the limit need not be displayed.

With VW aero conversion engine:

Maximum CHT: 225°C
Maximum EGT: 800°C
Oil Temp Limits: 90°C max
Oil Pressure: Minimum 2.5 kg/sq. cm @3000 RPM

2.8 Control surface deflections

Ailerons	Up: 22° - 25° Down: 22° - 25°
Elevators	Up: 30° - 34° Down: 20° - 23°
Rudder	Left: 30° - 33° Right: 30° - 33°

2.9 Operating Limitations and Placards

(Note that the wording on an individual aircraft's Operating Limitations document takes precedence, if different.)

1. Maximum number of occupants authorised to be carried: One
2. The aircraft must be operated in compliance with the following operating limitations, which shall be displayed in the cockpit by means of placards or instrument markings:
 - 2.1 Aerobatic Limitations
Aerobatic manoeuvres are prohibited.
Intentional spinning is prohibited.
 - 2.2 Loading Limitations
Maximum Total Weight Authorised: 750 lbs



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 223
STAAKEN FLITZER**

CG Range: 12.0 inches to 14.6 inches aft of datum.
Datum Point is: Leading edge of upper wing.

- 2.3 Engine Limitations
Maximum Engine RPM: 3300.
- 2.4 Airspeed Limitations
Maximum Indicated Airspeed (V_{NE}): 120 mph
- 2.5 Other Limitations
The aircraft shall be flown by day and under Visual Flight Rules only.
Smoking in the aircraft is prohibited.

Additional Placards:

"Occupant Warning - This Aircraft has not been Certificated to an International Requirement"

A fireproof identification plate must be fitted to fuselage, engraved or stamped with aircraft's registration letters.

2.10 Maximum permitted empty weight

Fuel tank contents may vary slightly between examples so it is not possible to define a universal maximum empty weight. With full fuel tank, aircraft must be able to carry a pilot weighing 170 lbs without exceeding max gross weight of 750 lbs. Hence max weight of aircraft with full fuel tank is 580 lbs.

Section 3 – Advice to owners, operators and inspectors

3.1 Maintenance Manual

None available. CAA CAP 411 Light aircraft maintenance schedule (LAMS) is recommended to develop a tailored maintenance program for the specific aircraft. See the engine manufacturers manual for engine maintenance.

3.2 Standard Options

None

3.3 Manufacturer's Information (including Service Bulletins, Service Letters, etc)

None available. There is a large library of information available on the Flitzer website <http://www.flitzerbiplane.com/>

3.4 Special Inspection Points

- With VW engine, design of conversion to be agreed with LAA Engineering as there is no standard design of VW 1834cc conversion. Dual ignition system (of an accepted type) required. LAA VW Engine Build checklist to be completed during



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 223
STAAKEN FLITZER**

build up of engine to record critical measurements. Refer to SPARS section on VW engines. Oil cooler will almost certainly be required, and careful ducting to achieve adequate cylinder cooling. Compression ratio must be set up (usually no more than 8.0:1) using choice of cylinder base shims. Failing to use base shims usually results in excessively high compression ratio and consequent excessively short engine life.

- With VW conversion, if gravity feed is used, check gravity flow from downstream side of carburettor float valve (by removing float chamber bowl or float chamber drain plug) rather than at carburettor fuel inlet. If an automotive carburettor (e.g. Stromberg CD150) is used with gravity feed, the carburettor float valve is often found to provide inadequate or very marginal flow. This is because automotive carburettors are set up for use with a pump-fed installation not gravity feed. The fuel pressure from a pump allows a carb float jet of only about 1.5 mm diameter to be used, this restricts the flow too much with the much lesser fuel pressure in a typical gravity fed system. This is a common cause of lean running and engine failure. This is cured by fitting a larger diameter jet to the float valve, (typically 2.5 to 3mm diameter) or carefully opening up the existing jet and lapping it in with a household brass polish.
- With VW engine, quality of fit of propeller hub on crankshaft nose is critical to security of propeller mounting in flight.
- When engine mount is made, ensure that centrelines of tubular mount members intersect with firewall mounting bushes at firewall face, to minimise offsets and bending moments in the joint. LAA note dated 10.7.01 refers.
- When shoulder harness attachment cross-cable is made, ensure that the cable is long enough for harness to act on a 90 degree or less 'vee' of cable rather than an almost taught cable, otherwise the cable tension loads are unduly magnified and the cable would be more likely to pull out of its attachments, or break in a crash. LAA note dated 10.7.01 refers.
- Ensure that control column grip is securely bolted or riveted to control column. A push fit is not acceptable.

3.5 Operational Issues

- Check for satisfactory engine cooling.
- Check for freedom from exhaust gases in the cockpit.

3.6 Standard Modifications

None

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Please report any errors or omissions to LAA Engineering: engineering@laa.uk.com